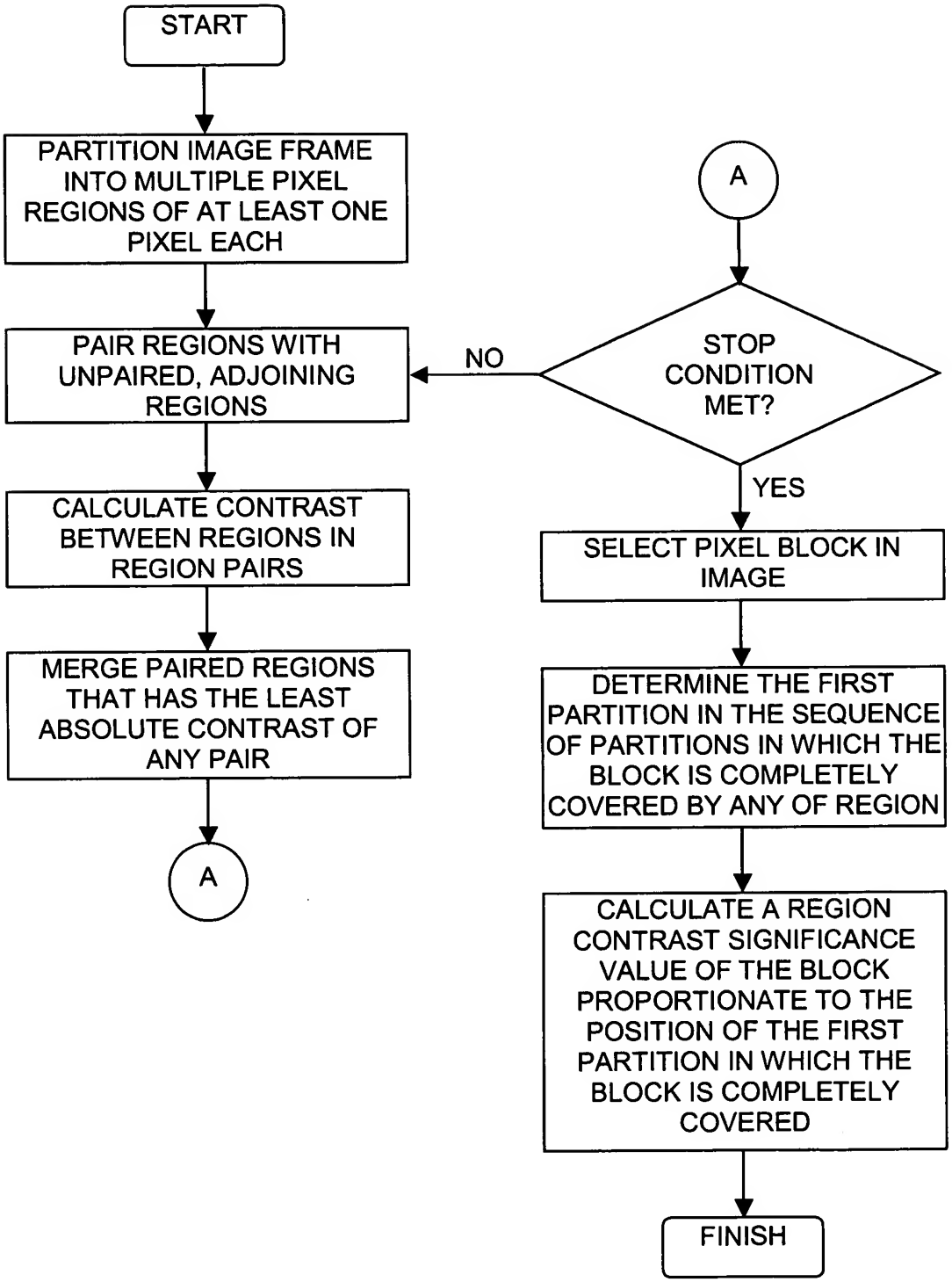

START
PARTITION IMAGE FRAME INTO MULTIPLE PIXEL REGIONS OF AT LEAST ONE PIXEL EACH
PAIR REGIONS WITH UNPAIRED, ADJOINING REGIONS
CALCULATE CONTRAST BETWEEN REGIONS IN REGION PAIRS
MERGE PAIRED REGIONS THAT HAS THE LEAST ABSOLUTE CONTRAST OF ANY PAIR
A
A
STOP CONDITION MET?
NO
YES
SELECT PIXEL BLOCK IN IMAGE
DETERMINE THE FIRST PARTITION IN THE SEQUENCE OF PARTITIONS IN WHICH THE BLOCK IS COMPLETELY COVERED BY ANY OF REGION
CALCULATE A REGION CONTRAST SIGNIFICANCE VALUE OF THE BLOCK PROPORTIONATE TO THE POSITION OF THE FIRST PARTITION IN WHICH THE BLOCK IS COMPLETELY COVERED
FINISH

Fig. 1A

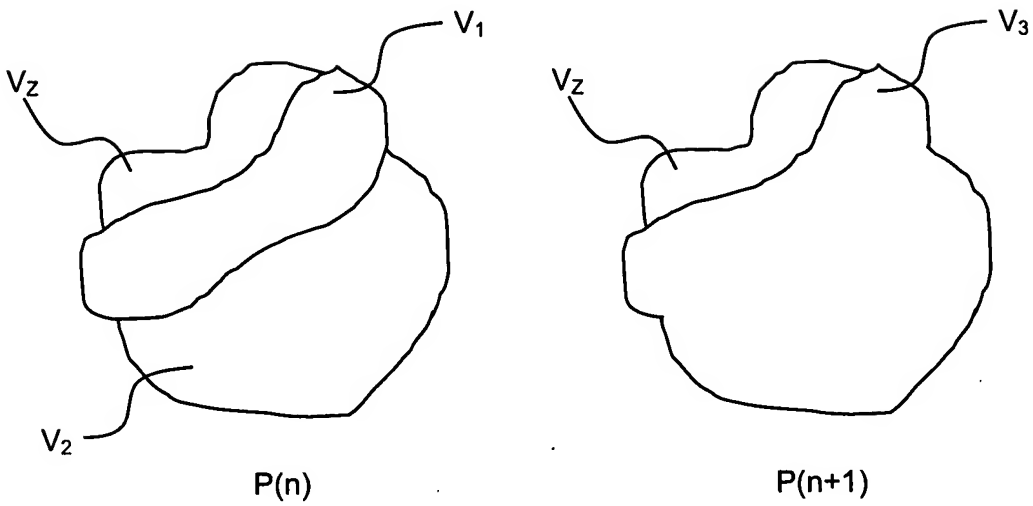


Fig. 1B

Fig. 2A

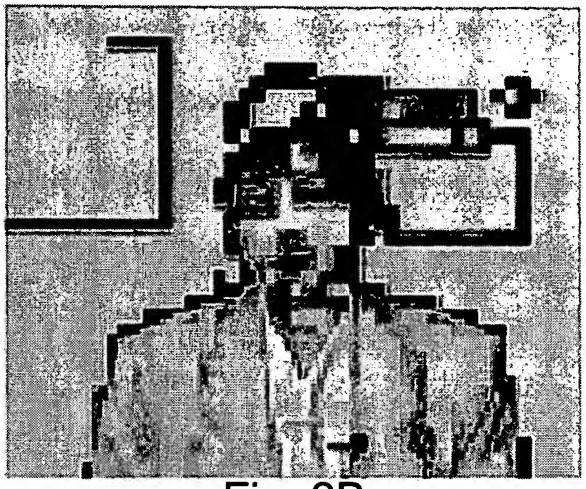


Fig. 2B

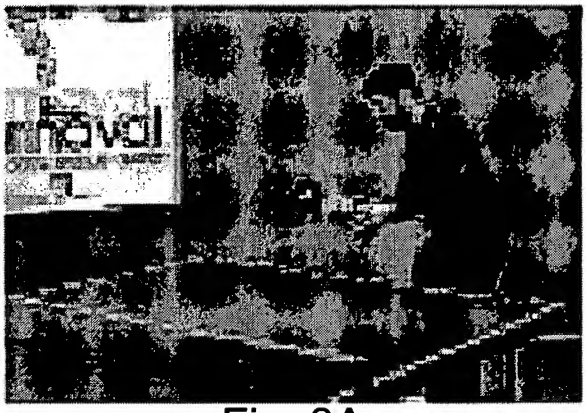


Fig. 3A

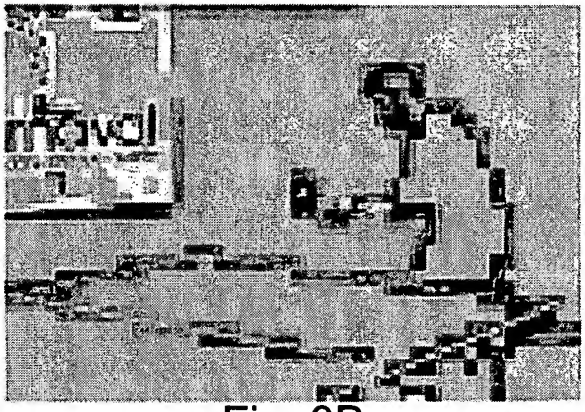


Fig. 3B

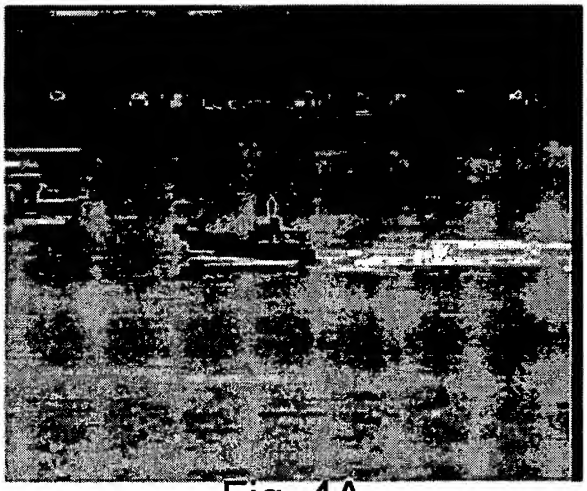


Fig. 4A

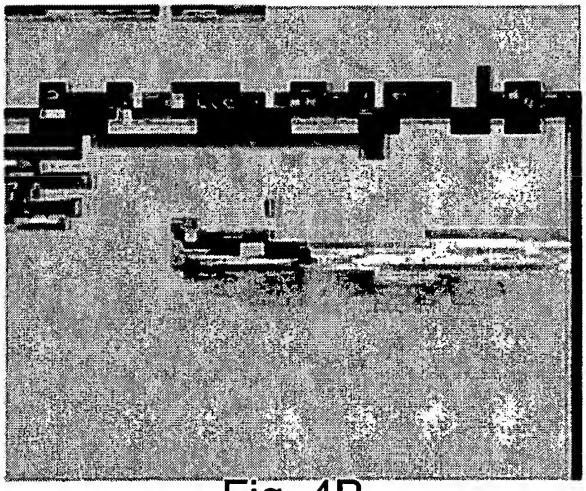


Fig. 4B

'ST AVAILABLE COP

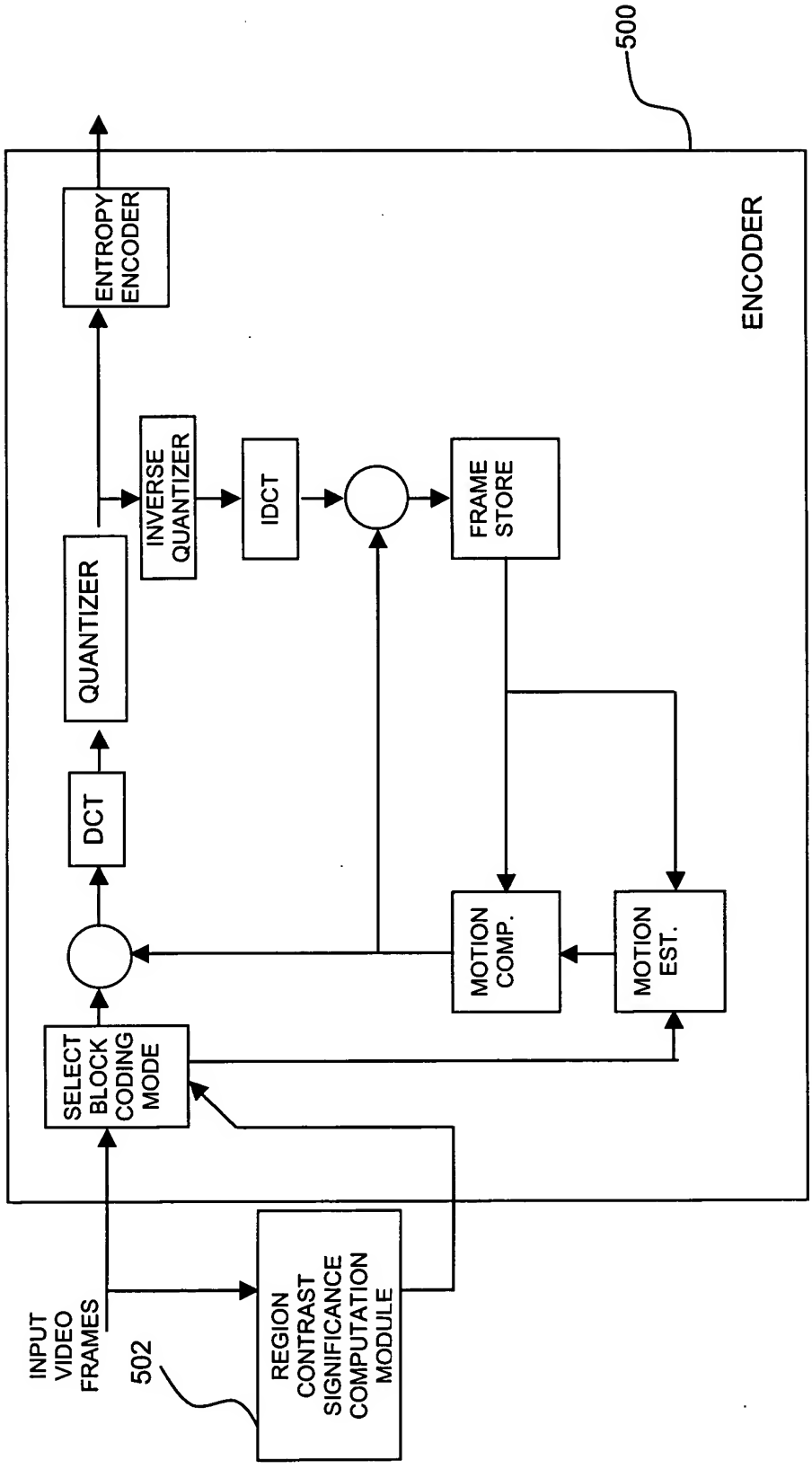

500
ENCODER
ENTROPY ENCODER
INVERSE QUANTIZER
IDCT
FRAME STORE
QUANTIZER
DCT
MOTION COMP.
MOTION EST.
SELECT BLOCK CODING MODE
INPUT VIDEO FRAMES
502
REGION CONTRAST SIGNIFICANCE COMPUTATION MODULE

Fig. 5

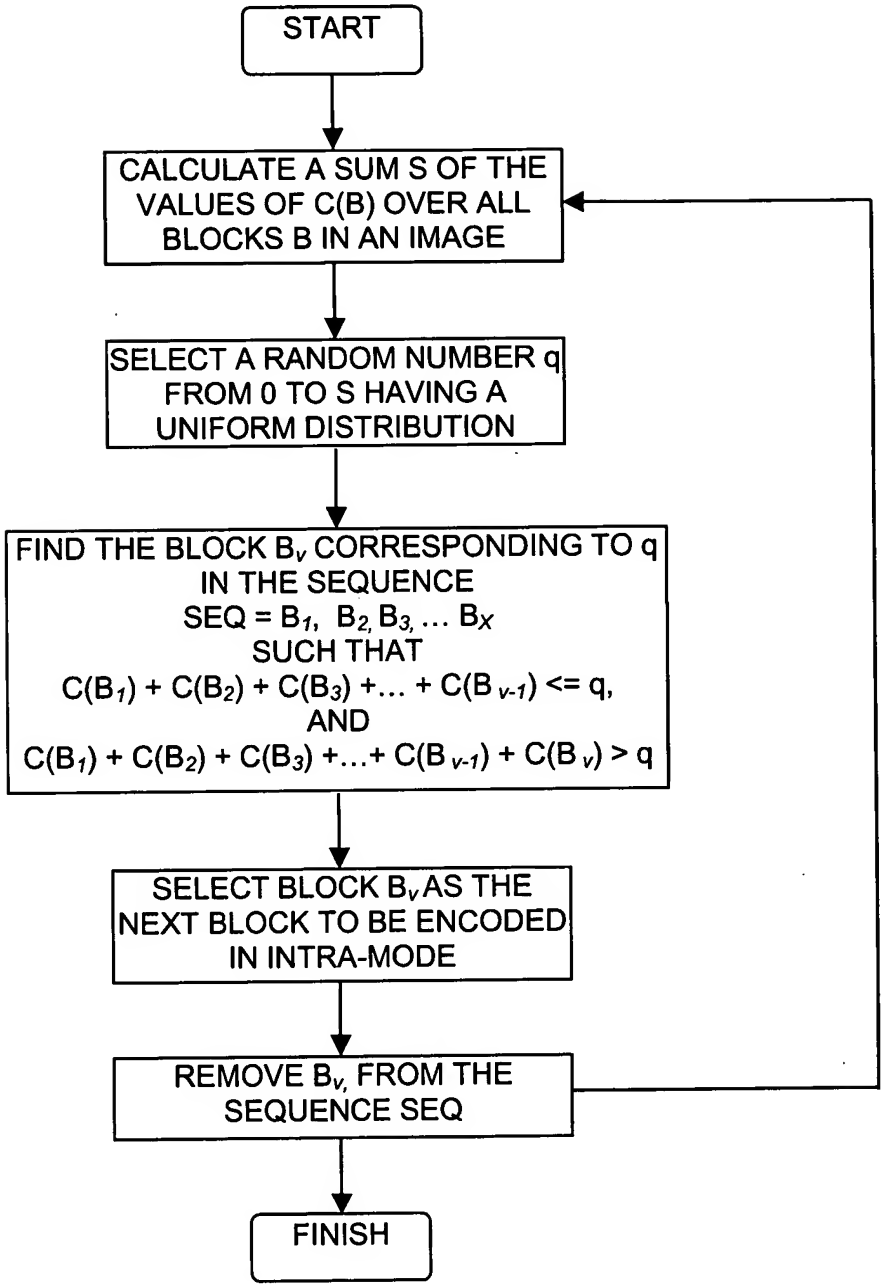

START
CALCULATE A SUM S OF THE VALUES OF C(B) OVER ALL BLOCKS B IN AN IMAGE
SELECT A RANDOM NUMBER q FROM 0 TO S HAVING A UNIFORM DISTRIBUTION
FIND THE BLOCK B_v CORRESPONDING TO q IN THE SEQUENCE SEQ = B_1, B_2, B_3, ... B_X SUCH THAT $C(B_1) + C(B_2) + C(B_3) + \ldots + C(B_{v-1}) <= q$, AND $C(B_1) + C(B_2) + C(B_3) + \ldots + C(B_{v-1}) + C(B_v) > q$
SELECT BLOCK B_v AS THE NEXT BLOCK TO BE ENCODED IN INTRA-MODE
REMOVE B_v FROM THE SEQUENCE SEQ
FINISH

Fig. 6

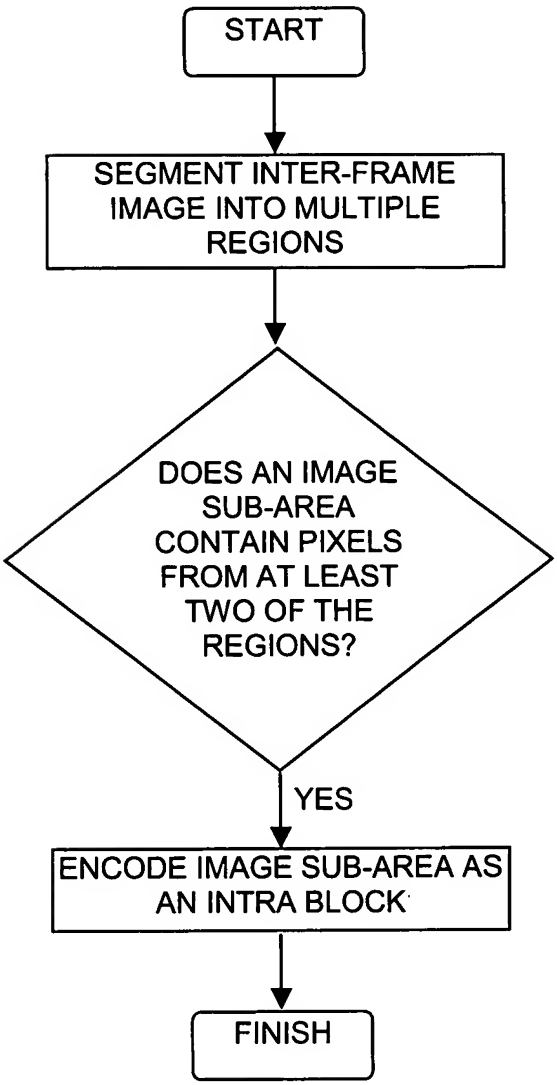

START
SEGMENT INTER-FRAME IMAGE INTO MULTIPLE REGIONS
DOES AN IMAGE SUB-AREA CONTAIN PIXELS FROM AT LEAST TWO OF THE REGIONS?
YES
ENCODE IMAGE SUB-AREA AS AN INTRA BLOCK
FINISH

Fig. 7

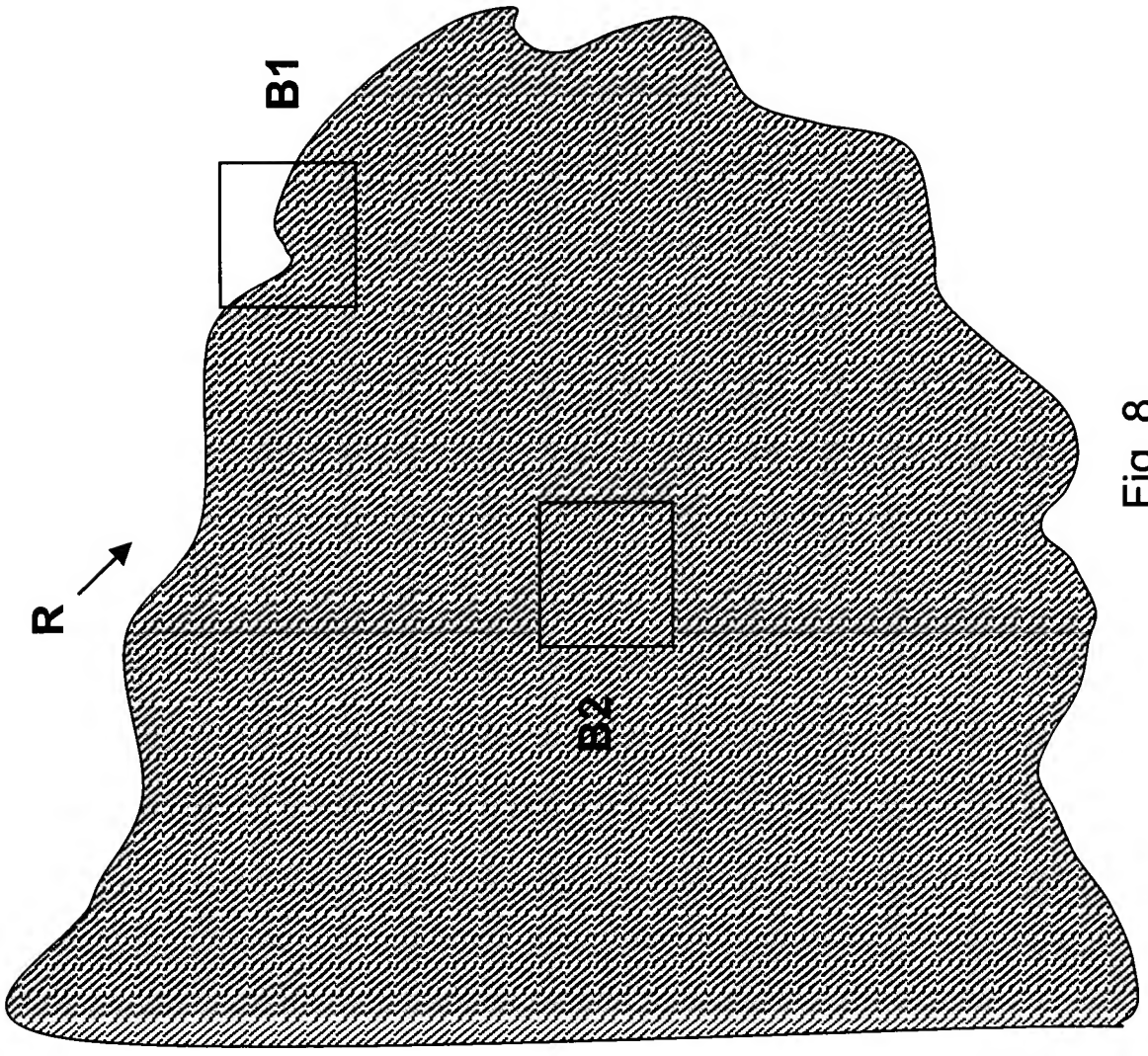


Fig. 8

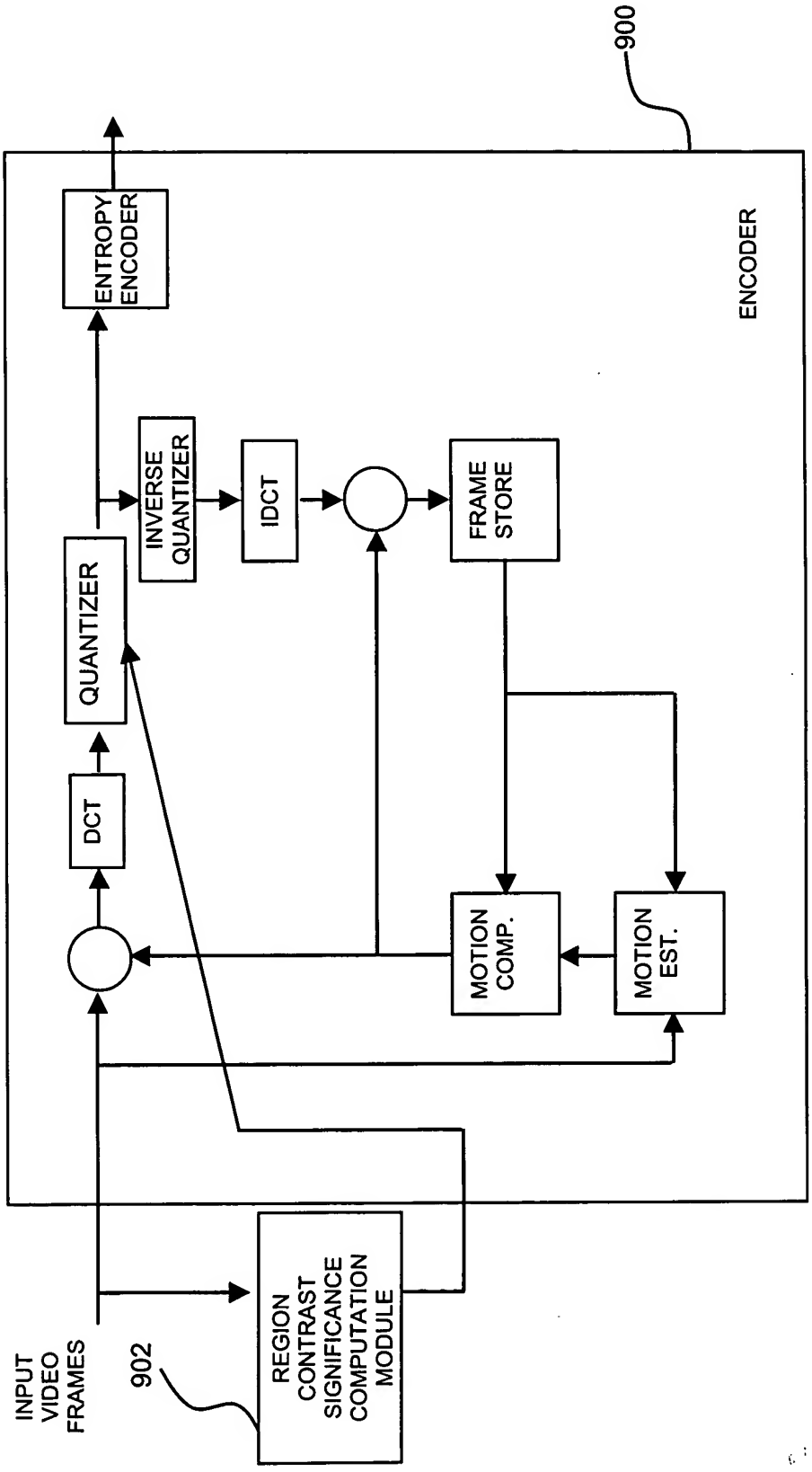

900
ENCODER
ENTROPY ENCODER
INVERSE QUANTIZER
IDCT
FRAME STORE
QUANTIZER
DCT
MOTION COMP.
MOTION EST.
INPUT VIDEO FRAMES
902
REGION CONTRAST SIGNIFICANCE COMPUTATION MODULE

Fig. 9

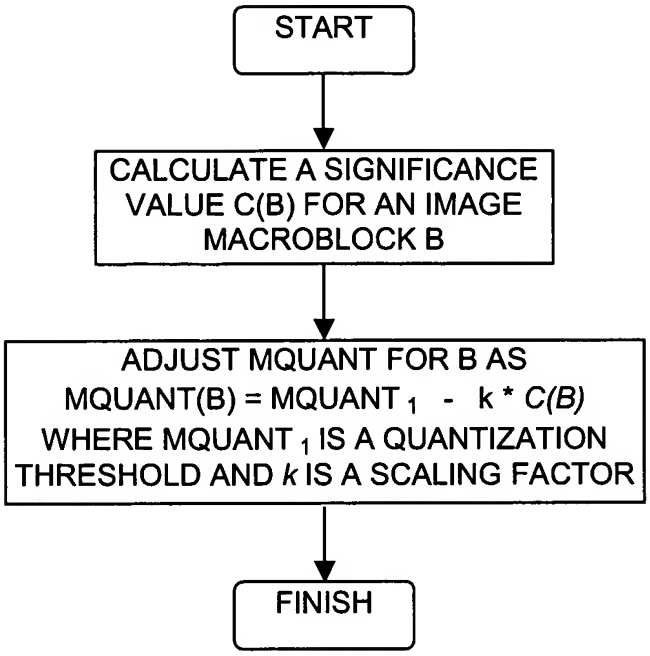
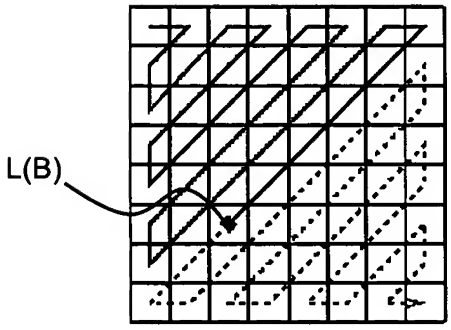

START
CALCULATE A SIGNIFICANCE VALUE C(B) FOR AN IMAGE MACROBLOCK B
ADJUST MQUANT FOR B AS MQUANT(B) = MQUANT $_1$ - k * *C(B)* WHERE MQUANT $_1$ IS A QUANTIZATION THRESHOLD AND *k* IS A SCALING FACTOR
FINISH

Fig. 10



$$L(B) = \begin{cases} 64 & \text{if } C(B) \geq T \\ k \times C(B) & \text{otherwise.} \end{cases}$$

Fig. 11